

invention from the cited art. In amending the claims, the informalities identified in paragraph 5 have been attended to. Claims 18-20 have been added to provide an additional scope of protection.

Applicants are submitting concurrently herewith a Request to Make Drawing Changes with proposed changes to Figure 1. As shown in red ink, Figure 1 is amended to include a semiconductor manufacturing equipment, inspection equipment and measuring equipment labelled in rectangular box form. Approval of the drawing corrections by the Examiner is respectfully requested.

Claims 1-11 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. In response to this rejection, Claim 7 has been further clarified and Claim 10 has been cancelled. It is submitted, however, that the preamble of the claims is directed to an apparatus and not to a subcombination of an air conditioner. It is respectfully submitted, therefore, that the recited features in the claims are commensurate in scope with the claimed preamble. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §112 is respectfully requested.

Claims 1-9 and 11 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Crawford '878. This rejection is respectfully traversed.

Applicant's invention as set forth in Claim 1 relates to an apparatus comprised of a chamber enclosing semiconductor manufacturing equipment, and an air conditioner for controlling air which is supplied into the chamber. The air conditioner includes a refrigerator using a refrigerant, a first heat exchanger for exchanging heat between the refrigerant and a coolant, and a second heat exchanger for exchanging heat between the coolant and the air which is supplied into the chamber. As claimed, the refrigerant is circulated between the refrigerator

and the first heat exchanger, and the coolant is circulated between the first and second heat exchangers.

In accordance with Applicant's claimed invention, a primary and secondary cooling medium are used. These provides a highly effective air conditioner for supplying air into the chamber.

Crawford relates to an air conditioning system that includes an air conditioning unit provided in a space 7 for supplying air to a room 6. As noted in the Office Action, Crawford includes a refrigerator, and first and second heat exchangers. As understood, compressed refrigerant is delivered by a compressor 28 to a condenser 27, where it is liquified and delivered to a cooler 33.

In contrast to Applicant's claimed invention, however, Crawford is not understood to teach or suggest, inter alia, an air conditioner that includes a refrigerant that is circulated between a refrigerator and a first heat exchanger and a coolant circulated between the first heat exchanger and a second heat exchanger.

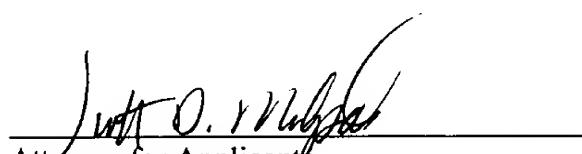
Accordingly, reconsideration and withdrawal of the rejection of the claims under 35 U.S.C. §102 is respectfully requested.

Therefore, it is submitted that Applicant's invention as set forth in independent Claim 1 is patentable over the cited art. In addition, Claims 2-9, 11 and 18-20 set forth additional features of Applicant's invention. Independent consideration of the dependent claims is respectfully requested.

In view of the foregoing, reconsideration and allowance of this application is deemed to be in order and such action is respectfully requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO SPECIFICATION

The paragraph starting at page 1, line 5 and ending at line 13 has been amended as follows:

This invention relates to an apparatus having an air-conditioning chamber wherein [a] high temperature stability is required and, more particularly, to an apparatus having an air-conditioning system to be connected to a high precision optical measurement system or to an environment chamber surrounding the same, such as, for example, a semiconductor manufacturing apparatus or an inspection or measuring apparatus.

The paragraph starting at page 4, line 2 and ending at line 14 has been amended as follows:

Further, in the near future, a pattern of 0.1 micron linewidth will have to be formed by mass production, and a much [strict] stricter level of 40 - 25 nm will be required for the registration precision in an exposure apparatus. Also, 12-inch wafers will be used prevalently for an enhanced productivity, and in such case the largest measurement distance will be more than 400 mm. In consideration of enhancement of the required registration precision or enlargement of the measurement distance such as described above, for example, it is desirable to improve the temperature stability around the measurement light path much more, to a level of 0.01 °C, for example.

The paragraph starting at page 4, line 26 and ending at page 5, line 13 has been amended as follows:

In accordance with an aspect of the present invention, there is provided an apparatus, comprising: a chamber having an inner space; and an air conditioner for controlling [an] air supplied or to be supplied into the inner space of said chamber, said air conditioner including (i) a refrigerator using a refrigerant, (ii) a first heat exchanger for exchanging [a] heat between the refrigerant and a coolant, and (iii) a second heat exchanger for exchanging [a] heat between [an] air supplied or to be supplied into said chamber and the coolant; wherein the refrigerant is circulated between said refrigerator and said first heat exchanger, and wherein said coolant is circulated between said first and second heat exchangers.

The paragraph starting at page 5, line 14 and ending at line 25 has been amended as follows:

A water, an anti-freeze, or a fluoride inert liquid, more specifically, a liquid having a large heat capacity such as a pure water, an ethylene glycol aqueous solution, or a PFC liquid, for example, may be used as a secondary refrigerant. In order to prevent an adverse influence of vibration of a refrigerator or the like upon an equipment inside a chamber, a refrigerator, a secondary refrigerant cooling heat exchanger, and a secondary refrigerant circulating means may be disposed in a casing, separate from the chamber, while an air heating means and [a] an air cooling heat exchanger may be disposed adjacent the chamber.

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE ABSTRACT

The Abstract starting at page 24, line 2 and ending at line 14 has been amended as follows:

An apparatus [including] includes a chamber having an inner space and an air conditioner for controlling [an] air supplied into the inner space[, wherein the]. The air conditioner includes (i) a refrigerator using a refrigerant, (ii) a first heat exchanger for exchanging [a] heat between the refrigerant and a coolant, and (iii) a second heat exchanger for exchanging [a] heat between [an] air supplied [or to be supplied] into the chamber and the coolant[, wherein the]. The refrigerant is circulated between the refrigerator and the first heat exchanger, and [wherein] the coolant is circulated between the first and second heat exchangers.



VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Amended) An apparatus, comprising:

a chamber [having an inner space] enclosing semiconductor manufacturing equipment; and
an air conditioner for controlling [an] air which is supplied [or to be supplied] into [the inner space of] said chamber, said air conditioner including (i) a refrigerator using a refrigerant, (ii) a first heat exchanger for exchanging [a] heat between the refrigerant and a coolant, and (iii) a second heat exchanger for exchanging [a] heat between the coolant and [an] the air which is supplied [or to be supplied] into said chamber [and the coolant;], wherein [wherein] the refrigerant is circulated between said refrigerator and said first heat exchanger, and [wherein] said coolant is circulated between first and second heat exchangers.

7. (Amended) An apparatus according to Claim 1, wherein at least a portion of said air conditioner is disposed [in juxtaposition of] adjacent said chamber.

8. (Amended) An apparatus according to Claim 7, wherein said second heat exchanger is disposed adjacent said chamber, and wherein said refrigerator and [sand] said first heat exchanger are disposed separately from said chamber.

9. (Amended) An apparatus according to Claim 1, wherein the coolant [contains one] is selected from the group consisting of [a] water, an anti-freeze liquid, and a fluoride inert liquid.

10. Cancelled.

11. (Amended) An apparatus according to Claim 1, further comprising [one] equipment selected from the group consisting of an inspection equipment and a measuring equipment, disposed inside said chamber.

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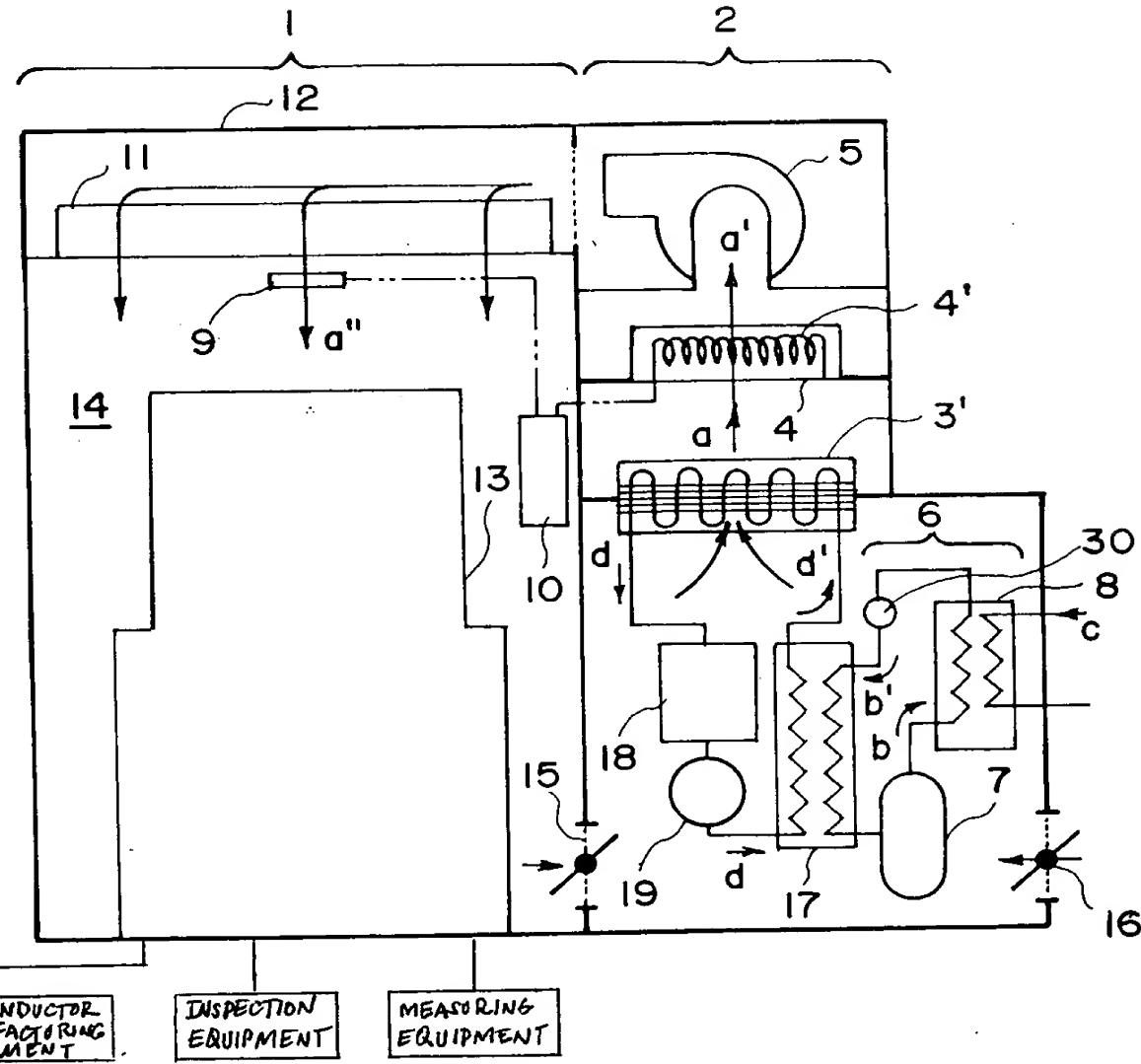


FIG. 1